009-0476-00

Description

As part of the line of Savant SmartSystems control solutions, the SmartMedia (SSM-3000) provides 7.1 Surround Sound plus four zones of distributed audio, video switching, a single zone of TrueCommand™, and integrated control in a 2U fanless enclosure.

Surround sound decoding and matrix processing, including Dolby® and DTS decoders, are available with the SSM-3000.

The digital preamplifier stage features sixteen channels, of which eight are designed to provide multi-channel sound to the main listening room while the other eight feed an additional four stereo zones.

SSM-3000 includes sixteen RCA jack connections grouped in one eight channel main zone (7.1 surround sound) and four stereo pairs for passing analog line-level audio signals to an external multi-channel amplifier.

The SSM-3000 supports audio time delay to compensate for lip sync errors. Audio can be delayed from 0 to 170 milliseconds (ms) in 1ms increments for proper lip sync compensation.

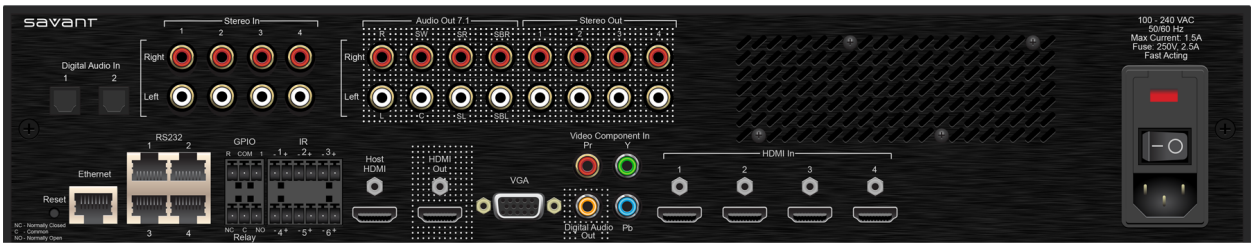
SSM-3000 also provides broadcast-quality video processing, scaling, and calibration features.

SSM-3000 enables Savant TrueCommand™ technology — an on-TV menu system used for navigating, browsing, and selecting diverse control subsystems and multimedia presented on HD displays.

Feature Summary

- Control Formats - RS-232, IR, Relay, and GPIO ports.
- Audio Switching and Processing
  - 7.1 Surround Sound Processing
  - Multi-room audio switching—up to 6 x 4
- Video Processing and Scaling
  - Enables Savant TrueCommand™ technology
- Complete control of all rooms, music and video when paired with Savant interfaces
- Playback of up to four independent iTunes® sources (external host required, not included)
- iTunes® Digital Media Server provided by the External Host (sold separately)
- Use RacePoint Blueprint™ design tool to configure and customize SSM-3000

Front View of SSM-3000 (above)



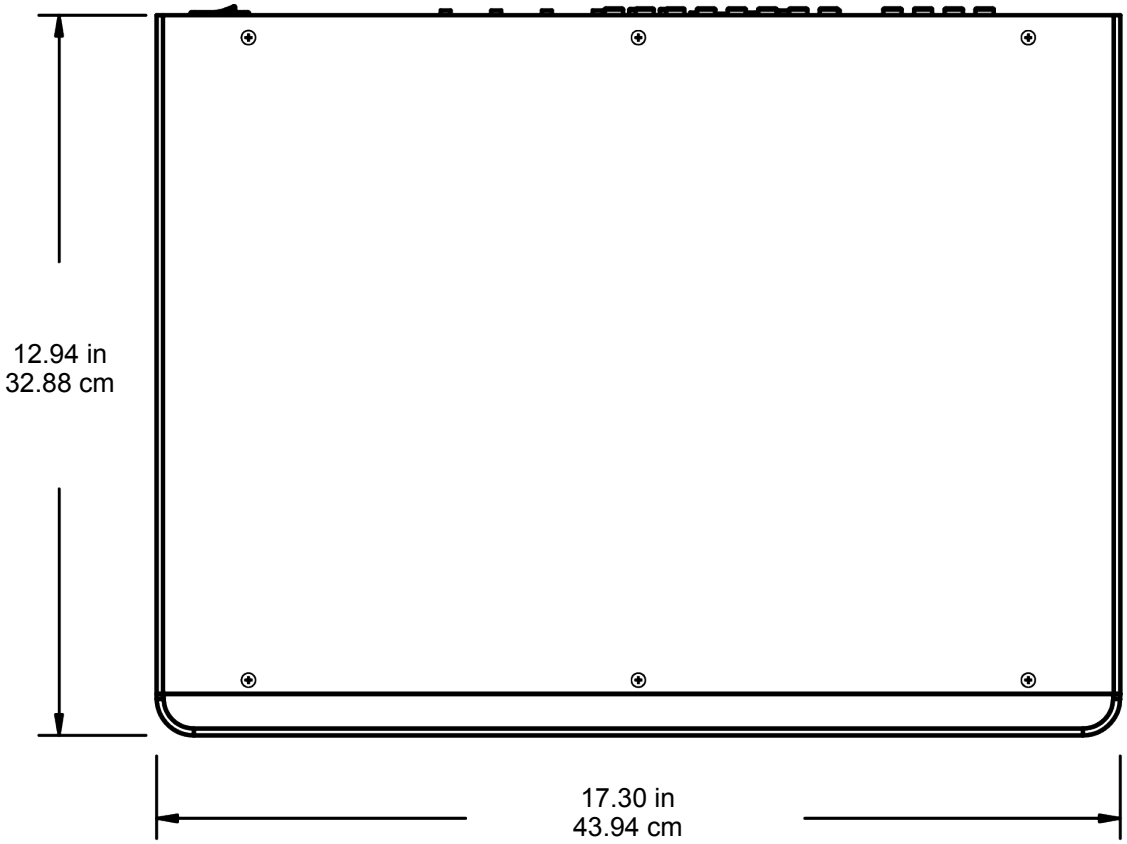
Rear View of SSM-3000 (above)

Savant Confidential and Proprietary

009-0476-00

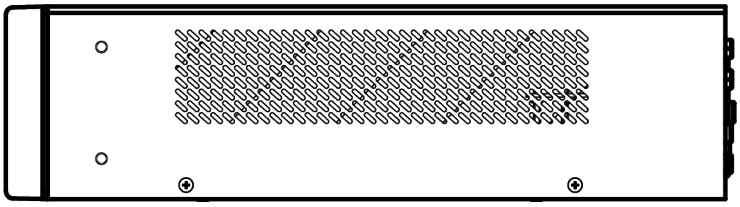
Dimensions

The next figures show the dimensions of the SSM-3000.



Top View (above)

Front View (above)



Side View (above)

Savant Confidential and Proprietary

Specifications

009-0476-00

Environmental		
Temperature	32° to 104° F (0° to 40° C)	
Humidity	10% to 80% Relative Humidity (non-condensing)	
Cooling	10 cubic feet per minute (CFM) recommended.	
Maximum BTUs	188 BTUs per hour	
Dimensions and Weight		
Height	3.46 in/8.79 cm	
Width	17.30 in/43.94 cm	
Depth	12.94 in/32.88 cm	
Weight	15.5 lb/7.03 kg	
Rack Space	2U	
Power		
Input Power	100-240V AC, 50/60 Hz	
Nominal Power	35 watts (75 VA)	
Maximum Power	55 watts (120 VA)	
Compliance		
Safety and Emissions	FCC Part 15 S Mark	CE Mark C-Tick
RoHS	Compliant	

Front LEDs

The LEDs on the front panel are used for diagnostic purposes. A description of the LEDs is available in the SSM-3000 Quick Reference Guide.

Rear Panel

See *Rear Panel Capabilities and Connectors,* page 5

Video Processing and Scaling (HDMI Out)

- Supports Frame Rate Conversion
- Adaptive mosquito noise reduction, block artifact and temporal noise reduction
- Hue, Saturation, Brightness and Contrast (HSBC) control
- Aspect Ratio: Anamorphic and Panoramic full screen, and pillar box.

Audio Switching and Processing

- Surround Sound: DTS-96/24, DTS-ES Discrete, Dolby Digital, PCM-96/24 and AAC
- Matrix Processing: Pro Logic II/IIX, Dolby Digital EX, DTS-ES Matrix, and DTS NEO:6
- Post Processing: Tone Controls, 7 Channel Stereo/Mono, Loudness Control
- Effects Modes: Studio, Club, Hall, Cathedral, Theater (18 total)
- Stereo Preamp Processing: Independent control of volume, balance, bass, treble, and mono/mute

Supported Video Output Formats

720p, 1080i, 1080p at 50/60 Hz
576p at 50 Hz
480p at 60 Hz
1920 x 1200 at 60 Hz
1366 x 768 at 60 Hz (custom)
HDCP: Supported

Supported Audio Output Formats

Source Signal Type	Audio Output Connector Type			
	HDMI	Digital Coaxial	7.1 Analog RCA	2.0 Stereo RCA
Dolby TrueHD	✓			
DTS-HD Master Audio	✓			
Dolby Digital	✓	✓	✓	
Dolby Digital EX	✓	✓	✓	
DTS Digital Surround	✓	✓	✓	
DTS-ES Discrete 6.1	✓	✓	✓	
DTS-HD Matrix 6.1	✓	✓		
DTS 96/24	✓	✓	✓	
Multichannel PCM	✓	✓	✓	
2.0 Stereo RCA	✓	✓	✓	✓

Enclosure

Metal enclosure, matte black

Savant Confidential and Proprietary

Included Items

The individual components contained in the installation kit (075-0075-XX) for the Savant SmartMedia (SSM-3000) are outlined in the next table.

Description	Quantity
2U Rack Mounting Brackets	2
Phillips Screws for Brackets (M5X12MM FLAT)	4
AC Power Cord (6 ft)	1
3-Pin Screw Down Connector for GPIO and relay ports	2
6-Pin Screw Down Connector for IR ports	2
HDMI Locking Cable (3 ft)	1
Quick Reference Guide	1

Required System Components

The system components required for use with the SSM-3000 are outlined in the next table.

Description	Model Number
Host Controllers	HST-4001, HST-4002 or SVR-4100
Ethernet Network	Enterprise-grade network deployment

Optional Accessories

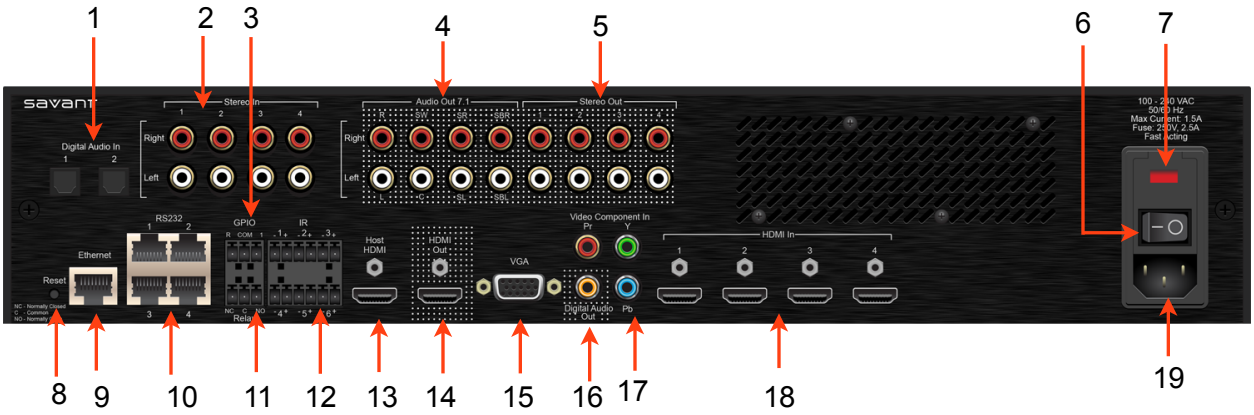
The optional accessories available for use with the SSM-3000 are outlined in the next table.

Description	Model Number
RS-232 Adapter Kit (5 pack)	SAK-1000
Infrared (IR) Emitter	IRB-1000
Infrared (IR) Emitters (10 pack)	IRB-1010
USB 2.0 over Cat 5e Digital Extender Set	UCX-2000
HDMI locking cable (3 ft)	CBL-3LHDMI
HDMI locking cable (6 ft)	CBL-6LHDMI
HDMI over Cat 5/6 Solution Set	HCX-1010
HDMI over COAX Solution Set	HCX-1100
HDMI over Multi-Mode Fiber Optic Cable Solution Set	HCX-1200
Structured Wire Bundle (3) Cat 5e + (1) 14/2 AWG	CBL-1000
RJ-45 Serial Adapters Flow Null (10-pack)	CON-10FN
RJ-45 Serial Adapters Flow No Null (10-pack)	CON-10FNN
DB-9 Mini Gender Changer (10 pack)	CON-10GEN
RJ-45 Serial Adapters No Flow Null (10-pack)	CON-10NFN
RJ-45 Serial Adapters No Flow No Null (10-pack)	CON-10NFNN
3-pin Screw-Down Connector (25 pack)	CON-STC3
6-pin Screw-Down Connector (25 pack)	CON-STC6

Savant Confidential and Proprietary

Rear Panel Capabilities and Connectors

The next figure shows the rear panel of an SSM-3000. The numbered callouts on the figure are explained in the next table.



The next table describes the numbered callouts in the previous figure.

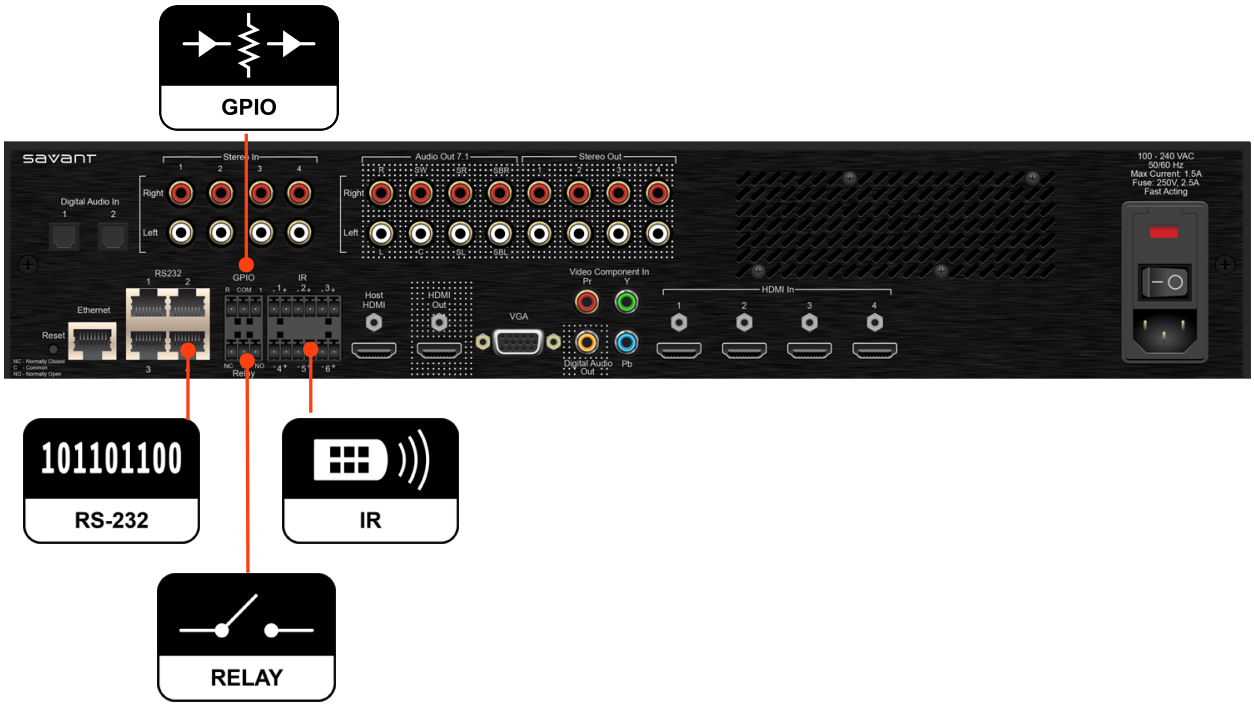
Number	Item	Description
1	Digital Audio In: 1, 2	Input ports support TosLink to receive digital audio signals.
2	Stereo In: 1, 2, 3, 4	Right and Left (8) RCA jacks for audio input
3	GPIO	General Purpose Input and Output ports—uses 3-pin screw-down connector The digital GPIO ports are binary I/O ports used for contact closure, trigger (output), or detect (input). R is reserved (not used). The COM pin is used for common ground. Pin 1 is used for input or output.
	GPIO Input	When configured as an input, the port detects a voltage present (GPIO input). GPIO inputs can safely detect the presence of a voltage of 0-30V DC with a threshold of approximately 2.4V DC.
	GPIO Output	When configured as an output, a GPIO port outputs a voltage between 0-12V DC. The maximum current per port is 150 milliamps. An overcurrent condition shuts down the output until that condition is removed.
4	Audio Out 7.1	Right and Left (8) RCA jacks for audio output (surround sound)
5	Stereo Out:1, 2, 3, 4	Right and Left (8) RCA jacks for audio output
6	I/O	On/Off button - I is used to power the controller to the On state. O is used to power the controller to the Off state.
7	Fuse	250V, 2.5A—Fast acting fuse. This is replaceable.
8	Reset button	Press to reset the SSM-3000.
9	Ethernet	RJ-45 10/100 Base-T, auto-negotiating port
10	RS-232	RJ-45 ports used to transmit and receive serial binary data transmission.
11	Relay NC/C/NO (Normally Closed/ Common Normally Open)	This port provides dry contacts (open/closed) to control devices requiring basic on/off operation. A single relay port can carry a maximum of 30V DC with a maximum current of 1.0 amps. Input from a device to the Savant controller is not supported through a relay. Uses a 3-pin screw-down connector (3.81 mm)
12	IR 1 - 6	Infrared transmitter ports (Two 6-pin 3.81mm screw down connectors)
13	Host HDMI	Input port for external host (HST-4001, HST-4002) with locking HDMI connectors
14	HDMI Out	HDMI output port to HDTV (for example)
15	VGA	Input analog RGBHV signal port—Component YP_BP_R capable
16	Digital Audio Out	Digital Coaxial connector. See compatible audio *Source Signal Types*, page 3.
17	Video Component In	RCA jacks for component input: YP_BP_R
18	HDMI In (1-4)	Input ports for devices using High-Definition Multimedia Interface
19	Input Power	100-240V AC, 50/60 Hz

Savant Confidential and Proprietary

Devices Supported by SSM-3000

009-0476-00

The next figure shows a rear view of the SSM-3000. Some of the devices that can be controlled using the control ports in an SSM-3000 are outlined in the next table.



The next table describes the typical uses associated with the ports on the SSM-3000.

Port Quantity	Port Type	Port Icon	Typical Uses
4	Serial	101101100 RS-232	Lighting, Displays, Door Entry Systems, and Heating Ventilation Air Conditioning (HVAC)
6	Infrared	IR	Blu-ray Players, Displays, and Set Top Boxes (Cable and Satellite)
1	General Purpose Input Output	GPIO	Equipment Power Sensing, and Voltage Control Applications
1	Relay	RELAY	Shade Control, Gate Controllers, Door Latches, and Motorized Lifts

Savant Confidential and Proprietary

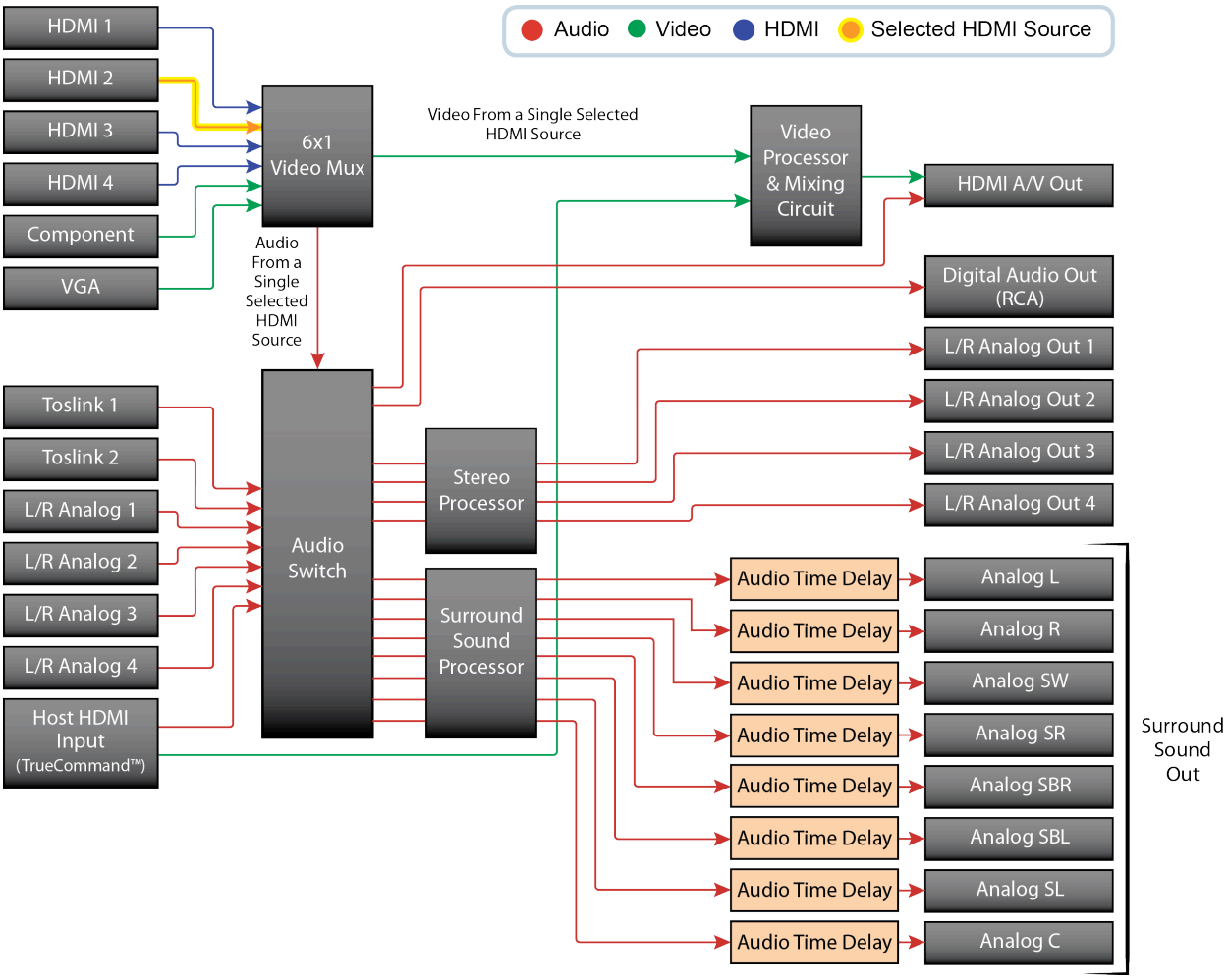
System Design Considerations

On an SSM-3000, the HDMI input port that is the source for the video out, can send and share its audio with the audio matrix switch internally. The other three HDMI input ports are standing idle and ready for the HDMI OUT to select it as a source.

In the top half of the next figure the video multiplexer (MUX) processes the inputs and outputs plus mixing in the Host OSD (True Command™). The bottom half of the figure shows the audio matrix switcher which depending on the source will send the signal to the stereo processor or the with the inputs and outputs. The active video selected to go out can also be added to the audio matrix switcher. The Audio line delay is also shown in relation to the analog outputs.

Audio Time Delay

Since the SSM-3000 supports audio time delay, it has the ability to allow programmable lip-sync delay up to 170 milliseconds (ms) per channel in 1ms increments through System Monitor, which is packaged with Savant's platform, RacePoint Blueprint™. The audio time delay feature is used to synchronize the surround audio outputs with a display's internal video processing delay.



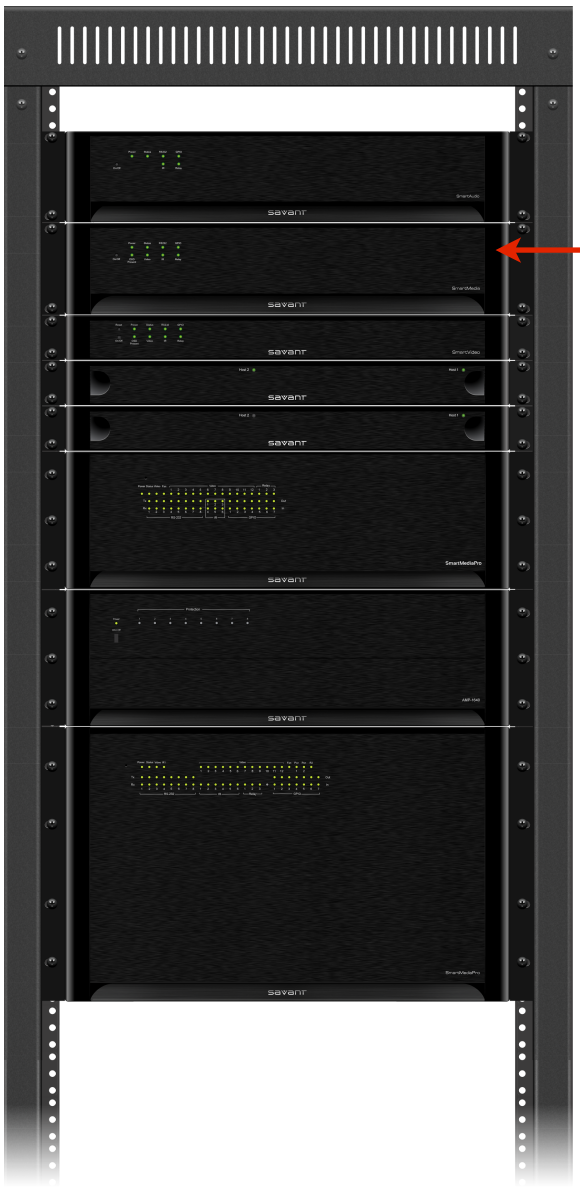
SmartMedia Audio and Video Routing: SSM-3000

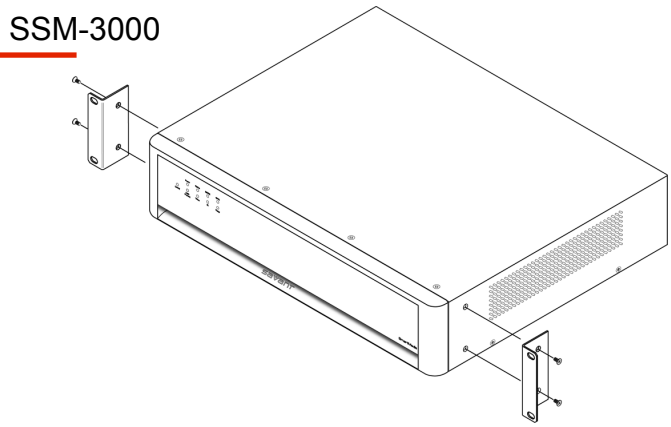
Savant Confidential and Proprietary

Specifications for Installing Device in Rack

009-0476-00

The SSM-3000 can be mounted in a 2U rack style enclosure. The next figure shows a partial view of a typical rack used to house an SSM-3000 and other devices. The SSM-3000 is compatible with all standard 19-inch National Electrical Manufacturers Association (NEMA) rack-mounts.





SSM-3000 with 2U mounting brackets (above

Installation Considerations

Savant recommends using cable supports on the rear of the chassis for audio/video control cabling.

This chassis needs adequate space on each side for air intake and exhaust—a minimum of two inches on each side

Copyright © 2012 Savant Systems, LLC. SAVANT and RacePoint Blueprint are trademarks of Savant Systems, LLC.
All brand names, product names and trademarks are the property of their respective owners.
Savant Systems, LLC reserves the right to change product specifications without notice.